Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Ralph Semb DBA Weatherhead's

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

? Inventory land uses within the recharge areas of all public water supply sources;

? Assess the susceptibility of drinking water sources to contamination from these land uses; and

? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program

Date Prepared:
December 17, 2003

Table 1: Public Water System (PWS) Information

PWS Name	Ralph Semb DBA Weatherhead's
PWS Address	French King Highway
City/Town	Erving, Massachusetts
PWS ID Number	1091010
Local Contact	Mr. William Barton
Phone Number	(800) 340-6041

Source Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Well #1	1091010-01G	267	687	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road deicing, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:
1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The Weatherhead's complex is located on the Mohawk Trail, (State Route 2) in Erving approximately 1,000 feet from the Route 63 intersection. The facility served by the public water system consists of two apartment buildings with a swimming pool, one residence, a bowling alley with a snack bar, a self-serve car wash and a full service restaurant. The facility heats with propane and there is no record of fuel oil on-site although the residents may use various fuels. Wastewater is discharged to the Erving

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by **the** water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

municipal wastewater treatment plant. The facility is also connected to the Erving Water Department municipal water system and utilizes water to supplement in an emergency and times of high demand. The facility utilizes dry wells for storm drains in the parking areas.

The Zone I is the protected area immediately surrounding the well while the Interim Wellhead Protection Area (IWPA) provides an interim protection area for a water supply well when the actual (Zone II) recharge area has not been delineated. The actual recharge area to the well may be significantly larger or smaller than the IWPA. The Zone I and Interim Wellhead Protection Area (IWPA) radii for this facility's well are 267 feet and 687 feet, respectively, based on metered water use of approximately 13,000 gallons per day.

The overburden in the immediate area is mapped as a thick glacial stratified drift deposit over bedrock. The feature is a delta formed into Glacial Lake Hitchcock during the recession of the glaciers some 18,000 years ago. There is no evidence of a protective barrier of either thick till or of a confining, protective clay layer in the vicinity of the well. The bedrock in the immediate area of the well is mapped as Fourmile and Dry Hill gneiss, rock associated with the Bronson Hill Zone. Wells located in these geological conditions are considered to have a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration from the surface. Please refer to the attached map of the Zone I and IWPA.

Water from the well is not treated. For current information on water quality monitoring results, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Refer to Table 2 for additional information regarding the location of the well and activities within the protection areas.

2. Discussion of Land Uses in the Protection Areas

The protection areas for Well #1 includes the entire facility: apartment buildings, 6 homes, part of Routes 2 and 63, side streets, the car wash and the restaurant.

Key issues include:

1. **Non-conforming activities within Zone I;**
2. **Residential;**
3. **Commercial facilities; and**
4. **Transportation corridors.**

Table 2: Table of Activities within the Water Supply Protection Areas for Both Sources

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Non-conforming Zone I	--	--	--	Non-conforming uses in Zone I. Contact DEP prior to expanding the system or conducting any work in Zone I.
Residential	Yes	Yes	Moderate	Provide BMPs for household hazardous materials management.
Car wash	Yes	Yes	Low	The facility is connected to the municipal sewer.
Self-storage units	No	Yes	--	Monitor for storage of hazardous materials such as petroleum.

*** -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.**

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Transportation corridor/parking with dry wells	Yes	Yes	Moderate	Limit road deicing materials and monitor parking areas.
Transformers	Yes	Yes	Low	Although most transformers today do not contain PCBs, the oils may pose a threat due to the proximity to the well.

*** -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.**

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400-foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

The overall ranking of susceptibility to contamination for Weatherhead's water system is moderate, based on the presence of several moderate threat ranked land uses or activities in the Zone I and IWPA. Please refer to Table 2 for more details.

1. Non-conforming activities within Zone I – Currently, the water supplier does own the entire Zone I area however, the activities conducted within the Zone I are non-conforming and may pose a potential threat to the water supply. Systems not meeting DEP Zone I requirements for ownership or control, must get DEP approval and address Zone I activities prior to increasing water use or expands the facility.

Recommendations:

- Consider relocation of the well if potential threats cannot be mitigated and water quality is impacted by activities or consider utilizing the Erving supply as an alternative.
- To the extent feasible, remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements. Prohibit new non-water supply activities in the Zone I.
- Where it is feasible, remove all hazardous materials from the Zone I. Continue current good housekeeping practices and the use of BMPs for the storage, use, and disposal of hazardous materials that are within your control.
- Monitor the parking lots for spills and accidental releases, as is feasible.
- Ensure that the local emergency response team is aware of your source and the protection areas in the event there is an accident.
- Inspect the well vault regularly to ensure it is sanitary and watertight.

2. Residential Land Uses – The Zone I and IWPA for Well #1 has high-density residential land use. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Although the facility itself uses propane, other properties in the IWPA may use alternate fuels. Common potential sources of contamination include:

- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) and the associated fuel lines can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground and streams. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents. Visit the Nonpoint Source pollution web site for additional information at http://www.state.ma.us/dep/brp/wm/nonpoint.htm.

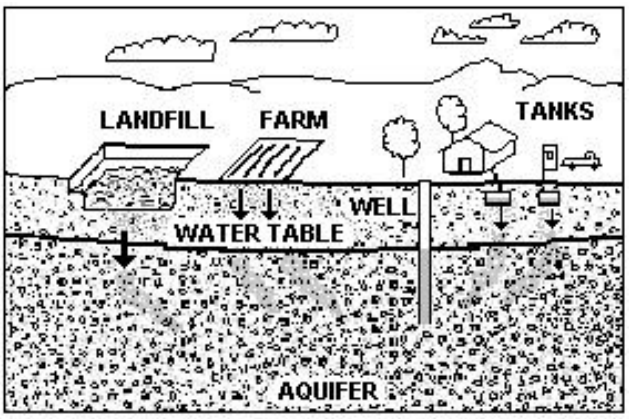

Figure 1: Example of how a well could become contaminated by different land uses and activities.

Residential Land Use Recommendations:

- Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet "Residents Protect Drinking Water" available in Appendix A and online at the MA DEP website - www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.

3. Commercial facilities – There are several commercial facilities located within the Zone I and IWPA: the car wash, restaurant, bowling alley and self-storage units. The potential threats are similar to those associated with residential land use such as household hazardous materials.

Recommendations:

- Since the parking area storm drains are dry wells, limit use of deicing materials.
- Provide the businesses with recommendations for BMPs regarding monitoring use of hazardous materials and monitor parking areas for accidental releases.
- Consider controlling the type of materials stored in the facility to limit hazardous material storage, including petroleum products.

4. Transportation corridor/parking – Route 2, Route 63 and parking for the apartments and commercial facilities are located within the Zone I and IWPA. Accidents and normal use and maintenance of roads pose a potential threat to water quality. Catch basins transport stormwater from roadways and adjacent properties to the ground, streams, rivers or reservoir. As flowing stormwater travels, it picks up de-icing materials, petroleum chemicals and other debris on roads and contaminants from streets and lawns. Common potential contaminants in stormwater originate from automotive leaks, automobile maintenance and car washing, accidental spills as well as waste from wild life and pets.

Recommendations:

- Prepare an Emergency Response Plan that includes coordination among the emergency responders to be sure they are aware of the location of your well and protection areas.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will further enhance the protection of the well and minimize its susceptibility to contamination. Review and consider adopting the key recommendations above and the following:

Priority Recommendations:

- Consider relocation of the well or utilizing Erving water if potential threats cannot be mitigated and water quality is impacted.
- Inventory activities in the IWPA and catalog any new potential threats identified.

Zone I:

- Prohibit any new non-water supply activities from the Zone I.
- Continue to prohibit public access to the well and pump house with locking facilities, gating roads, and posting signs as appropriate.
- Conduct regular inspections of the Zone I. Look for illegal dumping, evidence of access or vandalism.
- Redirect road drainage in the Zone I away from the well area.
- Do not use or store pesticides, fertilizers or road salt within the Zone I.

For More Information:

Contact Catherine V. Skiba in DEP's Springfield Office at (413) 755-2119 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at: www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been made available to the public water supplier and local town boards.

Training and Education:

- Train staff on proper hazardous material use, disposal, emergency response, and best management practices. Post labels as appropriate on raw materials and hazardous waste.
- Post drinking water protection area signs at key visibility locations away from the immediate wellhead area.
- Inform neighbors and consumers regarding BMPs with respect to household hazardous materials handling.

Planning:

- Since the system is already within the Zone II protection area for the Erving water supply well, be sure the emergency responders are aware of your source.
- Have a plan to address short-term water shortages and long-term water demands.
- Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Funding:

The Department's Wellhead Protection Grant Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the "Wellhead Protection Grant Program". For additional information, please refer to the program fact sheet. Each program year, if funds area available, the Department posts a new Request for Response for the Grant program (RFR). Other funding opportunities are described in "Grant and Loan Programs: Opportunities for Watershed Protection, Planning and Implementation" at the following DEP website: http://www.state.ma.us/dep/brp/mf/files/glprgm.pdf.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to encourage discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Areas
- Recommended Source Protection Measures Fact Sheets